Abstracts

Oral 19
Disease and injury surveillance II

O19.1 ATTRIBUTION OF CAUSES FOR WORKPLACE INJURIES

H. S. Shannon[1,2], C. A. Smith[1], S. S. Geldart[1], L. Lohfeld[1]. [1]*McMaster University, Hamilton, Canada;* [2]*Institute for Work & Health, Toronto, Canada*

Introduction: Causal attributions of work injuries are controversial, yet they are important because they form the basis for interventions. Our aim was to understand the attributions made by those with different roles in firms. Using attribution and other theory from psychology, we hypothesised that worker representatives would be less likely than management respondents to make attributions to worker causes and more likely to consider management causes. We also anticipated that workplaces with lower injury rates would be less likely to specify worker causes and more likely to list management causes.
Methods: We conducted a survey in Ontario workplaces, soliciting data from the senior managers (SM) and from the management (MC) and worker co-chairs (WC) of the workplaces' joint health and safety committees. Workplaces were classified as having high, medium, or low injury rates relative to the average for their industry. In one item, we asked ''What are the main causes of workplace accidents?'' and allowed for three responses. We coded the responses and classified them according to whether they indicated management or worker causes, work environment, nature of work or type of injury. (The last category was added as some respondents simply listed examples of types of injury.) We compared the answers from the different types of respondents.
Results: As anticipated, management was more likely than the worker co-chair to make at least one attribution to worker causes (SM: 74%, MC: 71%, WC: 62%; $\chi^2=9.2$ on 2 df, $p=0.01$). There were also differences in attribution to the work environment (SM: 18%, MC: 27%, WC: 31%; $\chi^2=11.9$ on 2 df, $p=0.003$). However, there were only minimal differences in attributions to management causes, cited by only 30% of respondents (SM: 31%, MC: 28%, WC: 30%; $\chi^2=0.31$ on 2 df, $p=0.86$). Attributions were generally not significantly related to the firms' injury rates.
Conclusion: The hypotheses were only partially confirmed. Despite the now substantial body of evidence that shows the role of management and organisational level factors in work injury, both workers and management are still much more likely to attribute injuries to worker than to management causes. We will discuss the implications of these findings for injury prevention.

O19.2 DIAGNOSTIC MODEL FOR WORKERS EXPOSED TO HIGH MOLECULAR WEIGHT ALLERGENS

D. Heederik, E. Suarthana, Y. Vergouwe, M. Nieuwenhuijsen, D. Heederik, D. E. Grobbee, E. Meijer. *Institute for Risk Assessment Sciences, Julius Center for Health Sciences and Primary Care, Utrecht, the Netherlands; Department of Occupational and Environmental Medicine, Imperial College, London, UK*

Introduction: Occupational allergy is common in workers exposed to high molecular weight (HMW) allergens. We previously developed a diagnostic model for sensitisation to lab animal allergens (*Occup Environ Med* 2004;**61**:831–7). This study aimed to develop and validate a generic diagnostic model for sensitisation to occupational HMW allergens.
Methods: The model was developed using logistic regression analysis using pooled data from approximately 1000 lab animal workers and bakers.
Results: The diagnostic model comprised of work related symptoms, working hours, total IgE, and positive IgE to common allergens. Regression coefficients were converted to a score chart together with their corresponding probabilities. Interactions between type of work and predictors resulted in different scores for bakers and laboratory animal workers. Observations and predictions were in agreement, showing good calibration. Discriminative ability of the diagnostic model in pooled data was good (AUC 0.77). The model had a higher sensitivity in laboratory animal workers (AUC 0.8) than in bakers (AUC 0.7). Validity was assessed internally by bootstrapping. External validation in British laboratory animal workers showed also good calibration and discriminative ability.
Conclusions: We concluded that it is possible to develop a generic diagnostic model for sensitisation to occupational HMW allergen with different weighing of predictors across specific work environments.

O19.3 YEARS OF LIFE LOST IN FERROUS METALLURGY WORKERS CAUSED BY HAZARDOUS OCCUPATIONAL FACTORS

N. Izmerov, T. Yakovleva, N. Golovkova, G. Tikhonova. *RAMS Institute of Occupational Health, Moscow, Russian Federation*

Introduction: Hazardous working environment may cause not only immediate but also long term effects such as increased mortality rate caused by occupational risk factors.
Aim: assessment of the years of life expectancy lost (YLELs) in ferrous metallurgy workers as a result of the influence of occupational factors.
Method: A prospective epidemiological study was conducted at a metallurgical factory in Nizhniy Tagil city, Ural (border line between Europe and Asia) with observation period of 20 years (1975–95). Overall number of person-years of observation was 100 246. The population of Sverdlovsk region was used as reference group. Assessment of YLELs in metallurgy workers was performed on the basis of comparison of mortality tables data for the index population and for two hypothetical populations, one being constructed from the region with exclusion of studied causes of death and another one with exclusion of studied causes of death but adjusted for mortality RR for metallurgy workers.
Results: In occupations related to metallurgy working environment which are characterised by intensive heating, dust, and hard physical work, mortality from ischaemic heart disease and hypertension was RR = 1.5 (95% CI 1.1 to 1.8), and from cancer of trachea, bronchia and lung RR = 1.4 (95% CI 1.1 to 1.9). In coke and chemical department with presence of 3,4-benz(a)pyren in concentrations up to 20–25 OEL, the mortality ratio due to malignant neoplasm was RR = 2.3 (95% CI 1.7 to 3.1) with the highest risk for cancer of trachea, bronchia, and lungs SMR = 3.8 (95% CI 2.6 to 5.3). Mean values of YLELs for 20 year old workers in ''hot'' occupations of the factory as compared with the male population of the Sverdlovsk region were 1.2 years from ischaemic heart disease and hypertension and about 0.5 years because of fatalities caused by malignant neoplasm of respiratory organs. In the coke and chemical department the mean value of YLELs because of high risk of death caused by malignant neoplasm was 5 years.
Conclusion: Diseases resulting from occupational hazards according to YLELs estimates depends on the mortality RR as well as on prevalence of the mortality cause studied and the mean age of its onset. The value of YLELs may be used as one of the ''sentinel events'' for occupational risk assessment.

O19.4 WHO WORKS WHERE? BUILDING CAPACITY FOR OCCUPATIONAL DISEASE AND INJURY SURVEILLANCE IN BRITISH COLUMBIA, CANADA

M. Koehoorn[1,2], K. McGrail[3], K. Teschke[1,2], J. Aghajanian[3]. [1]*Department of Health Care and Epidemiology, University of British Columbia, Canada;* [2]*School of Occupational and Environmental Hygiene, University of British Columbia, Canada;* [3]*Centre for Health Services and Policy Research, University of British Columbia, Canada*

Introduction: The British Columbia Linked Health Database (BCLHD) is among the richest data resources in the world for population health and health services research and includes longitudinal, person specific, health data on the province's four million residents since 1985. The data available include a client registry of British Columbia (BC) residents, medical services records (outpatient visits), hospitalisations, vital statistics, cancer incidence, mental health services, pharmaceutical prescriptions, workers' compensation claims, and health survey data. The purpose of this project was to create an industry of employment variable in the BCLHD for the surveillance of occupational disease and injury at a population workforce level.

Methods: A ''crosswalk'' was developed between an employer field (representing a health premium provider) in the BCLHD client registry and an industry coded employer field in the Workers' Compensation Board (WCB) registry. Both computer programming (deterministic and probabilistic linkages) and manual searches were used to create the crosswalk.
Results: For 2001, there were 15 983 unique employers in the client registry providing health premiums for 941 498 workers. Of these, we were able to find a match with the WCB registry for 13 390 employers (84% success) and assigned an industry code to 755 142 BC workers in the client registry (80% coverage). This represents approximately 40% of the total BC workforce. Coverage is lower for female workers, self-employed workers, and workers in small worksites.
Conclusion: The BCLHD with the addition of industry codes provides enhanced capacity for investigating questions on the relationships between work and health and on labour market experiences at the population health level. In particular, it enables disease and injury surveillance by industry of employment at the population workforce level on a variety of outcomes across health databases.

O19.5 HOW VALID IS SELF-REPORTED WORK RELATEDNESS OF HEALTH PROBLEMS? A COMPARATIVE STUDY OF SELF-REPORTED AND EXPERT ASSESSED WORK RELATEDNESS

I. S. Mehlum[1,2], H. Kjuus[1], K. B. Veiersted[1], E. Wergeland[2]. *[1]National Institute of Occupational Health, Oslo, Norway; [2]Directorate of Labour Inspection, Oslo, Norway*

Introduction: Self-administered questionnaires on work related health problems are widely used, especially in population surveys, but also in epidemiological studies. Comparison of reported symptoms with clinical assessment is often done when validating questionnaires. However, comparison of self-assessed work-relatedness with expert assessment has hardly been done. The main objective of this study was to compare self-assessment and occupational health experts' assessment of work relatedness of reported health problems.
Methods: All 30, 40, and 45 year old subjects who attended The Oslo Health Study 2000–01 were asked if they had experienced certain health problems in the past month, and whether they considered these to be work related. Of the invited 26 074 subjects in these age cohorts, 8594 (33%) answered the questions. To evaluate work relatedness, 268 subjects reporting eczema, respiratory symptoms, or pain in neck, shoulders or arms were examined by specialists in occupational medicine. ''Criteria document for evaluating the work relatedness of upper extremity musculoskeletal disorders'' was used in assessing the work relatedness of neck/shoulder/arm pain. Similar criteria were used in the evaluation of eczema and respiratory symptoms. Health problems assessed by the physician to be probably or possibly work related were classified as work related.
Results: The agreement between respondent and physician on work relatedness differed between health problems. The agreement was 85% for eczema, 64% for asthma symptoms, 86% for neck/shoulder pain and 78% for arm pain. Furthermore, in the majority of cases of disagreement, the respondent did not consider the problem work related, while the physician concluded with work relatedness. This was particularly true for asthma symptoms and to a lesser degree for eczema.
Conclusions: Agreement between respondents and physicians about work relatedness was considerable, but varied with type of health problem. Compared with expert assessment, self-reporting did not seem to exaggerate work relatedness. However, this will depend on the criteria for work relatedness that are used.